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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,132	10/14/2005	Raymond Hesline	HESL0101PUSA	1661

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EXAMINER
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CHAPEL, DEREK S

ART UNIT	PAPER NUMBER
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2872

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/553,132	<b>Applicant(s)</b> HESLINE, RAYMOND	
	<b>Examiner</b> DEREK S. CHAPEL	<b>Art Unit</b> 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 13-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                     |                                                                   |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                         | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Status Of Claims***

1. This Office Action is in response to an amendment received 10/22/2009 in which Applicant lists claims 1-12 as being cancelled and claims 13-20 as being "previously amended". It is interpreted by the examiner that claims 13-20 are pending.
2. Although claims 13-20 are labeled "previously amended" they were clearly intended to be labeled "previously presented" and will be treated as such. However, applicant is reminded that the status identifier of each claim must be included and accurate or the amendment can be held as non-compliant.

### ***Continued Examination Under 37 CFR 1.114***

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/22/2009 has been entered.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 13-16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhao et al., U.S. Patent Application Publication 2003/0113055 A1, of record (hereafter Zhao) in view of Hesline, U.S. Patent Number 5,864,428, of record (hereafter Hesline).

7. As to claims 13 and 14, Zhao discloses an optical device (see at least figure 2) comprising a first birefringent prism (see at least figure 2, element 12; it is noted that since the "beam displacer/combiner" (12) splits the light based on the polarization states it must be birefringent) for dividing an optical input beam into polarized beams (see at least figure 2, element 12), a second birefringent prism (see at least figure 2, element 13; it is noted that since the "beam displacer/combiner" (13) splits the light based on the polarization states it must be birefringent) for combining polarized beams into an output beam (see at least figure 2, element 13), and a polarization changer disposed between said first birefringent prism and said second birefringent prism (see at least figure 2, elements 14, 15, 16 or 17), further comprising a third birefringent prism (see at least figure 2, element 20; it is noted that since the "polarization walk-off crystal" (20) splits the light based on the polarization states it must be birefringent) disposed between said

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polarization changer and said second birefringent prism (see at least figure 2, elements 14, 16, 20 and 13).

Zhao does not specifically disclose that each of the first, second and third birefringent prisms are combinations of birefringent prisms with parallel optic axes wherein each said combination of birefringent prisms has oblique input and output faces.

However, Hesline teaches using a combination of birefringent prisms, with parallel optic axes wherein the combination of birefringent prisms has oblique input and output faces, to split an input beam into two parallel output beams (see at least figure 4, elements 31 and 35 as well as column 3, line 46 through column 4, line 6 of Hesline; it is noted that the birefringent prisms of Hesline are reciprocal and therefore could be used in reverse to combine two parallel input beams into one output beam).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the optical device of Zhao to include the teachings of Hesline so that each of the first, second and third birefringent prisms are replaced with first, second and third combinations of birefringent prisms with parallel optic axes wherein each said combination of birefringent prisms has oblique input and output faces, for the purpose of conserving the amount of birefringent material used in the optical device, as taught by Hesline (see at least column 1, lines 56-67 and column 2, lines 7-17 of Hesline).

8. As to claim 15, Zhao in view of Hesline discloses that the prisms of at least one combination of birefringent prisms are arranged about at least one reflector or refractor

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(see at least figure 2 of Zhao, first and second combinations of birefringent prisms 12 and 13 arranged about element 19).

9. As to claim 16, Zhao in view of Hesline discloses that the prisms of at least one combination of birefringent prisms are arranged about a polarization changer (see at least figure 2 of Zhao, first and second combinations of birefringent prisms 12 and 13 arranged about elements 14, 16, 17 and 15).

10. As to claim 20, Zhao in view of Hesline discloses that said device is an optical switch (see at least the title and abstract of Zhao), wherein light entering a first port of said device exits through a second port of said device or through a third port of said device (see at least paragraphs [0012], [0021], [0023] and [0031] of Zhao) as determined by a switching means (see at least figure 2, elements 16 and 17 of Zhao), wherein at least one polarization changer of said device is a reciprocal polarization changer (see at least figure 2, elements 14 and 15 as well as paragraph [0041] of Zhao).

11. Claims 13, 15-16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al., U.S. Patent Application Publication Number 2003/0020989 A1, of record (hereafter Liu) in view of Hesline, U.S. Patent Number 5,864,428, of record (hereafter Hesline).

12. As to claim 13, Liu discloses an optical device (see at least figure 14) comprising a first birefringent prism (see at least figure 14, element 1402a) for dividing an optical input beam into polarized beams (see at least figure 14, element 1402a), a second

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birefringent prism (see at least figure 14, element 1402b) for combining polarized beams into an output beam (see at least figure 14, element 1402b), and a polarization changer disposed between said first birefringent prism and said second birefringent prism (see at least figure 14, elements 1415a and 1415b).

Liu does not specifically disclose that each of the first and second birefringent prisms are combinations of birefringent prisms with parallel optic axes wherein each said combination of birefringent prisms has oblique input and output faces.

However, Hesline teaches using a combination of birefringent prisms, with parallel optic axes wherein the combination of birefringent prisms has oblique input and output faces, to split an input beam into two parallel output beams (see at least figure 4, elements 31 and 35 as well as column 3, line 46 through column 4, line 6 of Hesline; it is noted that the birefringent prisms of Hesline are reciprocal and therefore could be used in reverse to combine two parallel input beams into one output beam).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the optical device of Liu to include the teachings of Hesline so that each of the first and second birefringent prisms are replaced with first and second combinations of birefringent prisms with parallel optic axes wherein each said combination of birefringent prisms has oblique input and output faces, for the purpose of conserving the amount of birefringent material used in the optical device, as taught by Hesline (see at least column 1, lines 56-67 and column 2, lines 7-17 of Hesline).

13. As to claim 15, Liu in view of Hesline discloses that the prisms of at least one combination of birefringent prisms are arranged about at least one reflector or refractor (see at least figure 14 of Liu, first and second combinations of birefringent prisms 1402a and 1402b arranged about at least element 1430; it is noted that element 1430 is optically between 1402a and 1402b).

14. As to claim 16, Liu in view of Hesline discloses that the prisms of at least one combination of birefringent prisms are arranged about a polarization changer (see at least figure 14 of Liu, first and second combinations of birefringent prisms 1402a and 1402b arranged about elements 1415a and 1415b).

15. As to claim 18, Liu in view of Hesline discloses that said device is an optical attenuator (see at least paragraphs [0031] and [0139]-[0141] of Liu), wherein light entering a first port of said device exits through a second port of said device with an intensity as determined by an intensity varying means (see at least paragraphs [0031] and [0139]-[0141] of Liu), wherein at least one polarization changer of said device is a reciprocal polarization changer (see at least figure 14, elements 1415a and 1415b).

16. Claims 13, 16-17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pan et al., U.S. Patent Application Publication Number 2003/0147136 A1, of record (hereafter Pan) in view of Hesline, U.S. Patent Number 5,864,428, of record (hereafter Hesline).

17. As to claim 13, Pan discloses an optical device (see at least figure 1A) comprising a first birefringent prism (see at least figure 1A, element 110 as well as



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paragraphs [0031]-[0033] and [0047]) for dividing an optical input beam into polarized beams (see at least figures 1A, 1B and 1C, element 110 as well as paragraphs [0031]-[0033] and [0047]), a second birefringent prism (see at least figure 1A, element 170 as well as paragraphs [0031]-[0033] and [0047]) for combining polarized beams into an output beam (see at least figures 1A, 1B and 1C, element 170 as well as paragraphs [0031]-[0033] and [0047]), and a polarization changer disposed between said first birefringent prism and said second birefringent prism (see at least figure 1A, elements 120, 130, 150 and 160).

Pan does not specifically disclose that each of the first and second birefringent prisms are combinations of birefringent prisms with parallel optic axes wherein each said combination of birefringent prisms has oblique input and output faces.

However, Hesline teaches using a combination of birefringent prisms, with parallel optic axes wherein the combination of birefringent prisms has oblique input and output faces, to split an input beam into two parallel output beams (see at least figure 4, elements 31 and 35 as well as column 3, line 46 through column 4, line 6 of Hesline; it is noted that the birefringent prisms of Hesline are reciprocal and therefore could be used in reverse to combine two parallel input beams into one output beam).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the optical device of Pan to include the teachings of Hesline so that each of the first and second birefringent prisms are replaced with first and second combinations of birefringent prisms with parallel optic axes wherein each said combination of birefringent prisms has oblique input and output faces, for the

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purpose of conserving the amount of birefringent material used in the optical device, as taught by Hesline (see at least column 1, lines 56-67 and column 2, lines 7-17 of Hesline).

18. As to claim 16, Pan in view of Hesline discloses that the prisms of at least one combination of birefringent prisms are arranged about a polarization changer (see at least figure 1A of Pan, first and second combinations of birefringent prisms 110 and 170 arranged about elements 120, 130, 150 and 160).

19. As to claim 17, Pan in view of Hesline discloses that said device is an optical isolator (see at least paragraphs [0003] and [0005] of Pan), wherein light entering a first port of said device exits through a second port of said device, wherein light entering said second port does not exit through said first port (see at least paragraphs [0003], [0005] and [0032] of Pan), wherein at least one polarization changer of said device is a nonreciprocal polarization changer (see at least figure 1A, elements 120 and 160 as well as paragraph [0031] of Pan).

20. As to claim 19, Pan in view of Hesline discloses that said device is an optical circulator (see at least the title and abstract of Pan), wherein light entering a first port of said device exits through a second port of said device, wherein light entering said second port exits through third port of said device (see at least paragraph [0032] of Pan), wherein at least one polarization changer of said device is a nonreciprocal polarization changer (see at least figure 1A, elements 120 and 160 as well as paragraph [0031] of Pan).

### ***Response to Arguments***

21. Applicant's affidavit filed 10/22/2009 is non-compliant and therefore is not persuasive (see at least the sections of the M.P.E.P. set forth below). However, for completeness, applicant's arguments have been addressed below.

#### **715.04 [R-6] Who May Make Affidavit or Declaration; Formal Requirements of Affidavits and Declarations**

##### **I. WHO MAY MAKE AFFIDAVIT OR DECLARATION**

The following parties may make an affidavit or declaration under 37 CFR 1.131:

- (A) All the inventors of the subject matter claimed.
- (B) An affidavit or declaration by less than all named inventors of an application is accepted where it is shown that less than all named inventors of an application invented the subject matter of the claim or claims under rejection. For example, one of two joint inventors is accepted where it is shown that one of the joint inventors is the sole inventor of the claim or claims under rejection.
- (C) If a petition under 37 CFR 1.47 was granted or the application was accepted under 37 CFR 1.42 or 1.43, the affidavit or declaration may be signed by the 37 CFR 1.47 applicant or the legal representative, where appropriate.
- (D) The assignee or other party in interest when it is not possible to produce the affidavit or declaration of the inventor. *Ex parte Foster*, 1903 C.D. 213, 105 O.G. 261 (Comm'r Pat. 1903).

Affidavits or declarations to overcome a rejection of a claim or claims must be made by the inventor or inventors of the subject matter of the rejected

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claim(s), a party qualified under 37 CFR 1.42, 1.43, or 1.47, or the assignee or other party in interest when it is not possible to produce the affidavit or declaration of the inventor(s). Thus, where all of the named inventors of a pending application are not inventors of every claim of the application, any affidavit under 37 CFR 1.131 could be signed by only the inventor(s) of the subject matter of the rejected claims.

Where one or more of the named inventors of the subject matter of the rejected claim(s) (who had originally signed the oath or declaration for patent application under 37 CFR 1.63) is now unavailable to sign an affidavit or declaration under 37 CFR 1.131, the affidavit or declaration under 37 CFR 1.131 may be signed by the remaining joint inventors provided a petition under 37 CFR 1.183 requesting waiver of the signature of the unavailable inventor be submitted with the affidavit or declaration under 37 CFR 1.131. Proof that the non-signing inventor is unavailable or cannot be found similar to the proof required for a petition under 37 CFR 1.47 must be submitted with the petition under 37 CFR 1.183 (see MPEP § 409.03(d)). Petitions under 37 CFR 1.183 are decided by the Office of Petitions (see MPEP § 1002.02(b)).

## **II. FORMAL REQUIREMENTS OF AFFIDAVITS AND DECLARATIONS**

An affidavit is a statement in writing made under oath before a notary public, magistrate, or officer authorized to administer oaths. See MPEP § 604 through § 604.06 for additional information regarding formal requirements of affidavits. 37 CFR 1.68 permits a declaration to be used instead of an affidavit.

**The declaration must include an acknowledgment by the declarant that willful false statements and the like are punishable by fine or imprisonment, or both (18 U.S.C. 1001) and may jeopardize the validity of the application or any patent issuing thereon. The declarant must set forth in the body of the declaration that all statements made of the declarant's own knowledge are true and that all statements made on information and belief are believed to be true.**

**§ 1.68 Declaration in lieu of oath.**

Any document to be filed in the Patent and Trademark Office and which is required by any law, rule, or other regulation to be under oath may be subscribed to by a written declaration. Such declaration may be used in lieu of the oath otherwise required, if, and only if, the declarant is on the same document, warned that willful false statements and the like are punishable by fine or imprisonment, or both (18 U.S.C. 1001) and may jeopardize the validity of the application or any patent issuing thereon. The declarant must set forth in the body of the declaration that all statements made of the declarant's own knowledge are true and that all statements made on information and belief are believed to be true.

22. With respect to the arguments that U.S. Patent Number 5,864,428 (of record) cannot be used against the applicant because it is the applicant's own work, this argument is not persuasive. 5,864,428 qualifies as art under 35 U.S.C. 102(b) and therefore is a statutory bar under 35 U.S.C. 102(b) and thus cannot be overcome by an

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affidavit or declaration under 37 CFR 1.131, and is eligible for use in the rejections set forth above under 35 U.S.C. 103(a). As shown by the quotations of the appropriate paragraphs of 35 U.S.C. 102 set forth below, a patent eligible for use under 102(b) may be by anyone (including the inventor).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

**A person shall be entitled to a patent unless –**

**(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.**

### ***Conclusion***

23. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, this action is a **final rejection** and is intended to close the prosecution of this application. Applicant's reply under 37 CFR 1.113 to this action is limited either to an appeal to the Board of Patent Appeals and Interferences or to an amendment complying with the requirements set forth below.

If applicant should desire to appeal any rejection made by the examiner, a Notice of Appeal must be filed within the period for reply identifying the rejected claim or claims appealed. The Notice of Appeal must be accompanied by the required appeal fee.

If applicant should desire to file an amendment, entry of a proposed amendment after final rejection cannot be made as a matter of right unless it merely cancels claims

or complies with a formal requirement made earlier. Amendments touching the merits of the application which otherwise might not be proper may be admitted upon a showing a good and sufficient reasons why they are necessary and why they were not presented earlier.

A reply under 37 CFR 1.113 to a final rejection must include the appeal from, or cancellation of, each rejected claim. The filing of an amendment after final rejection, whether or not it is entered, does not stop the running of the statutory period for reply to the final rejection unless the examiner holds the claims to be in condition for allowance. Accordingly, if a Notice of Appeal has not been filed properly within the period for reply, or any extension of this period obtained under either 37 CFR 1.136(a) or (b), the application will become abandoned.

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEREK S. CHAPEL whose telephone number is (571)272-8042. The examiner can normally be reached on M-F 8:30am-5:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. S. C./  
Examiner, Art Unit 2872  
1/13/2010

/Stephone B. Allen/  
Supervisory Patent Examiner  
Art Unit 2872